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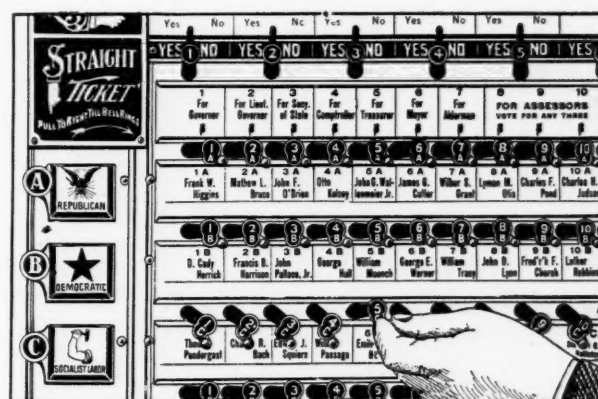
No. 4

THE MACHINERY OF SECRET VOTING

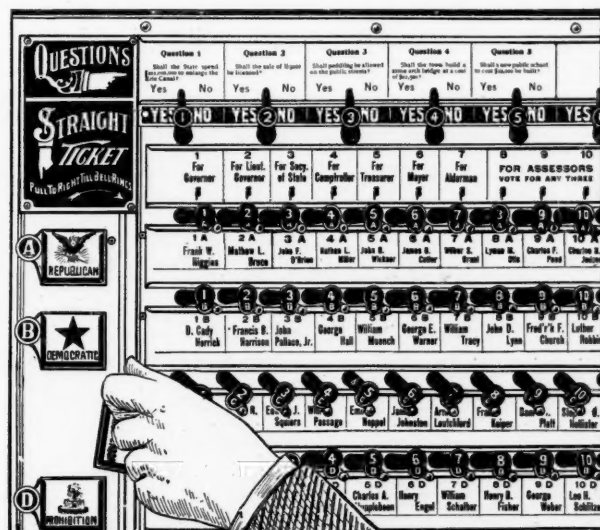
THE introduction into this country of what is generally known as the Australian system of voting at elections has been surprisingly successful when the special difficulties of the situation are kept in view. Voting by ballot has been a part of the British election system since 1872, but the issues presented to the Parliamentary and municipal voter are those of the simplest kind. In a Parliamentary election, the choice usually lies between the candidates of two strictly defined political parties, and the number of members to be elected in each constituency is usually not more than two. Even if a particular contest is enlivened by the appearance of a labor candidate, or other representative of special interests, the situation remains a simple one, a cross against the name of the approved candidate or candidates being all that the voter is asked to furnish. In municipal and other local government elections, but little more complication is introduced, the absence from these, as from Parliamentary elections, of all public offices and their prospective incumbents being in startling contrast to American electoral conditions.

It is true that among the many propositions now before the American public, having for their object the greater efficiency and purity of civic administration, the elimination of the direct vote for officers is a prominent and hopeful feature. But the Utopia kept in view by well informed and enthusiastic reformers is still a dream,

and in the meantime the problem of meeting conditions as they exist has to be dealt with in its various ramifications. In some States, as in Massachusetts, the use of ballots, involving considerable premeditation and clerical labor, appears to have met with success from the standpoint of correctly registering the will of the people, but even there the time consumed, and the increased possibility of error or collusion, in counting and tabulating the votes has been found objectionable.



VOTING A SPLIT TICKET ON THE SAME MACHINE



VOTING A STRAIGHT TICKET ON THE U. S. STANDARD VOTING MACHINE

Under these circumstances the American genius for invention has found free play in the devising of machines for automatically recording the intentions of the electorate, and the increased use of these devices in the elections of November last may be taken as an indication of growing confidence in a system to which objections readily present themselves. As regards the latter, the initial cost is a serious item to any community, and there are not wanting those who urge even more weighty grounds of objection, such as the inability of a voter, after using a machine, to affirm of his own knowledge how he voted, or at any rate, how his vote was recorded. Having recently had an opportunity of examining a machine of this character, not in use, but thoroughly exposed for inspection, the present writer was impressed by the care which had been devoted to the elimination of all risks, and by the consequent mechanical perfection of the appliance as it stands today. There are various types on the market, some of which are illustrated in this article, but the essentials are the same in all. There must be a keyboard, provided with a separate key for each candidate,

as well as "Yes" and "No" keys for voting on such questions as licensing. Counters for each key must be separate and distinct, and there must be some system of interlocking to limit the number of keys capable of being operated in any single group. Privacy for the voter is secured by a movable curtain, so connected with the mechanism as to liberate or engage the machinery he is to set in motion.

It must be admitted that the dominating feeling, after inspecting a machine in this thorough fashion, is one of doubt as to its advantages from the standpoint of simplicity. The mental make-up which is capable of manipulating a complex ticket on one of these machines should experience no difficulty in marking a Massachusetts ballot. On the other hand, the use of the machines is a growing factor in elections throughout the country, so that there is at least *prima facie* evidence of their meeting an admitted want. The skill brought to bear upon their production has already removed an objection once urged against them on the score of slow voting, for they have proved themselves capable of recording votes at a greater speed than the election officers can handle the necessary documents and check off the voters. In the Buffalo election of 1904, 1041 voters were polled in one machine in the eleven hours of voting.

A point sometimes made against the machines on the score of indefinite voting is not borne out by the experience of San Francisco's recent election, when over 71,000 voters polled. Of these, 91¼ per cent. voted and counted their tickets complete, leaving only three-quarters of one per cent. as the total for those who declined to vote for particular offices, or who made mistakes which invalidated their record. The experience of the last elections, almost universally, was that party allegiance has lost its former strength and influence, and it is therefore more than ever important that the facilities for "splitting" should be complete in character and unimpeachable as regards accuracy.

Street Cleaning in Indianapolis

THE first year's operation of the municipal street cleaning department in Indianapolis has proved eminently satisfactory. This is particularly true from an economic standpoint, the service having been rendered at a material saving as compared with the private contract system. The actual cost in 1905 amounted to \$54,451.84 for cleaning 1,661,584,391 square feet of permanent improved roadway, this being \$14,792.36 less than was spent in 1904 for taking care of an area less by 15,048,012 square feet. This is equivalent to a saving of 9.3 cents on each "square" of 10,000 square feet.

The total amount appropriated for street cleaning in 1905 was \$80,500. Of this, \$26,048.15 was spent for equipment, which the city now owns as a permanent investment. It consists of 101 mules, twenty modern dump wagons, ten broom sweeping machines, tools, etc.

Payrolls amounting to \$45,336.48 formed the heaviest item of the year's expenditures. Stable and feed ex-

penses came next with \$7,212.06; repairs cost \$1,037.42, and "miscellaneous" amounted to \$845.73. These figures are taken from the report of Charles A. Garrard, Superintendent of the Department.

In the main, the new task undertaken by the city was satisfactorily performed. The streets were kept reasonably clean at all times, although there were hitches sometimes. Complaints from the citizens were somewhat fewer than were formerly made against contractors. The new city administration, which has just taken office, is in sympathy with municipal work and will continue it on lines suggested by last year's experience.

Home Rule for Cities

GOVERNOR PATTISON, in his inaugural message to the Ohio Legislature, referred as follows to the growing demand for greater freedom in city government:—

"Attention is called to the interest that is being taken in the subject of home rule for cities, particularly as to the right of each city, town or village at large to decide for itself all questions of local policy, especially those of public or private ownership of all public utilities, including street railways, waterworks and lighting systems. Provision should be made for submitting such matters to the people. If such authority should be given it certainly should be guarded by the merit system of appointment and tenure of office. Although heretofore this may have been a subject of party interests it should not now be one of partisan action. If this privilege is given one or more cities would probably take advantage of it at once. While this idea of home rule in a larger sense is being favorably discussed in various portions of the country, and in some of the leading cities of our own State, surely some immediate action should be taken by the General Assembly to prohibit any municipality from giving away or selling any franchise of any nature, or from extending any franchise, without first submitting it to a vote of the people of said city."

The City of Richmond, Va.

A twelve-page pamphlet, issued by the Finance Committee of the Richmond City Council, primarily as a means of showing the favorable condition of that department of the city's administration, embodies much information in a form too frequently ignored.

As regards the financial position, Richmond carries no floating debt; all accounts are closed at the end of each fiscal year, except for outstanding contracts then unfinished. It is shown, also, that the city possesses assets of \$5,431,719 in excess of liabilities, and other parts of the leaflet enable the inquiring taxpayer to find, with no labor in dissection or research, exactly what is being done with the money furnished by himself and others. The city owns her gas and water works, has abundant water power—much of it yet available for new undertakings—and her municipal assets, including parks, schools, police and fire departments, show how much has been accomplished in this famed Southern city.

A COMPREHENSIVE MESSAGE

In his message to the Detroit Common Council, delivered January 9, Mayor George P. Codd touched upon many points of municipal activity in terms which invest his observations with more than local interest. In dealing with

THE DEPARTMENT OF PUBLIC WORKS

he referred to the continued success of the asphalt plant, which he regarded as having "demonstrated beyond question the advisability and feasibility of the city undertaking all this work itself. I sincerely trust," he continued, "that during the coming season sheet asphalt pavement, and the repair thereof, will be undertaken by ourselves and not by contract. The report of the asphalt expert shows that the cost of laying the binder and top dressing, when done by the city, is \$0.75 to \$0.85 per square yard. The reasonableness of this figure, the durability of the pavement, when laid honestly, and its cleanliness recommend it very highly, especially for the residence streets, and it is to be hoped that it will not be long before only pavements of this character, or brick pavements, are laid throughout the city. . . . The introduction of the street flushing system, in the purchase of four machines, and their use in the downtown districts, has commended itself very highly to the merchants, and has proved such a success as warrants its continuance. It is to be hoped that a liberal appropriation will be made by your honorable body for the purchase of more machines, so that this system can be extended to all hard paved streets in the city. I believe it will eradicate the dust nuisance, of which the various departments of our city and the citizens are complaining; and it is also only right that the other localities of our city should have the benefits which the down-town districts have already had from the introduction of this system."

STREET CAR MATTERS

are referred to as follows: "It is gratifying to note the policy in regard to street car matters which I believe pervades your honorable body, that no further rights or concessions, which, as a matter of course, strengthen the street railway company's rights, shall be given unless an adequate return is made to the city. The question is one that cannot be settled in a day or a year. As long as the present company has contract arrangements with this city, which do not begin to expire for three or four years from now, the entire question can best be settled by agreement.

"In this matter we should stand strictly by our pledges to the people, and no agreement of any kind should be made unless based upon the great desideratum, three-cent fares, or their equivalent; and any agreement must, in any event, be submitted to a vote of the people for their approval before its final adoption. But pending this, or any other arrangement that should be made, the rights of the city should be fully conserved and not parted with in any particular. There have been, in the past, too many valuable concessions and privileges given to this company

without any return to the city, and the granting of each one of which strengthens the position of the company in the coming contest for settlement.

"It is distinctly pleasing to know that this policy has ended and that no more concessions are to be given to the present company, prior to a settlement of the entire question, unless an adequate return, in the way of concessions, or the surrendering of privileges, is given to the city. This may mean, at times, a hardship to some particular citizens in different localities, but the good citizen will realize that, under this arrangement, his self-sacrifice is for the common good of the city as a whole. It is unfortunate that some should temporarily suffer, but they have the realization that it is for the common good."

Judging from the stress placed by the Mayor upon the necessity for

EFFICIENT INSPECTION OF WORK

it might be gathered that special reason exists, in Detroit, for solicitude in this respect. "The apparent desire," he states, "or inclination, for such must it be called, on the part of some contractors dealing with the public, to get as much for as little work as possible is not only a matter of great regret, but is also a matter that the city should take every precaution against any suffering on its part thereby. These desires compel a most rigid watchfulness on the part of the city of all its public work and, to this end, the best and most thorough inspectors are necessary to watch over the interests of the city. A civil service would greatly tend to accomplish this, but, in the absence of the passage of this act, I shall request the Commissioner that, in the work during the coming season, inspectors shall only be appointed on merit, and after they have filed a written application, showing their previous experience in the work, upon blanks furnished for this purpose, which will give the Commissioner a better opportunity to investigate the qualifications and satisfy himself as to the competency of the applicants, and thus place in this temporary employment, only men who have had such experience as will enable them to properly safeguard the city's interests in the work that they are looking after, and that efficiency, and not politics, shall be the sole criterion in the selection of men for this important work.

"When, however, contractors avoid plans and specifications for their work, or attempt to obtain money from the city for work not done in the manner called for by the plans and specifications, a thorough investigation should, in each instance, be made thereof, and if this is done with the knowledge or connivance, or lack of vigilance of any official or employee of this city, investigation should place the blame, no matter of whatsoever nature it may be, where it properly belongs, no matter on whom it may fall; and in any such investigation or inquiry, I assure your honorable body that every help shall be given from my office that the examination may be so thorough and searching, and the finding so positive, that such an example may be set that will have a deterrent effect from further attempts of such a nature."

A State Governor on Franchises

GOVERNOR HIGGINS, in his annual message to the New York Legislature, spoke out plainly as to the conditions under which private companies—"quasi-governmental agencies"—are invested with their various franchises.

"Private companies," he said, "control our railroads, telegraphs, telephones, gas and water supplies and other services which have become necessary to the daily lives of many of our citizens. Such companies are quasi-governmental agencies, vested with the sovereign power to condemn private property for their uses. They are permitted to exist because the State delegates to them its own functions for convenience and economy and to promote industrial development. Such corporations should be tolerated only so long as their rates are reasonable and their service prompt and efficient.

"It has been suggested by a learned Justice of the Supreme Court of the United States that such companies have not even the constitutional right to a profit on their investments, and that, while they cannot be required to do business at a loss, they may be compelled to content themselves with a return equal to the cost of operation and maintenance. So radical a theory has not been adopted, but that it should be declared from the bench of our most eminent and conservative tribunal is a significant suggestion of the power of the people to regulate public service companies, or failing therein, to exercise their functions directly through government, State or local.

"In Great Britain the rate for gas in municipal plants averages 64 cents a thousand, while in a number of the cities it is so low as 50 cents. In the United States the average charge is \$1.25 per thousand. It ill becomes the State to protect public service companies in extorting unjust charges from the consumer. Corporations are but associations of individuals. The act of incorporation does not make them outlaws nor deprive them of natural rights; nor, on the other hand, does it set them above the law. A careful investigation of the gas problem in New York City by a competent and conscientious legislative committee resulted in the recommendation of an 80-cent rate to be established by law. A *prima facie* case was made out. The action of the Legislature was subject to judicial review. Yet relief was refused."

THE ADVANTAGES OF CEMENT GUTTERS for streets are urged in a report by City Engineer Fred Charles, to the Board of Public Works, Richmond, Ind. As compared with the boulder curb and gutter which has become "a thing of the past," the cement curb and gutter is "easier to clean and repair and the cost of maintenance is much less. Although the cement curb and gutter costs more to install, it proves cheaper in the end and also gives better satisfaction. One of the best qualities is the ease with which it may be cleaned. Furthermore, the growth of weeds is prevented and more surface water is carried off, as no chance is given for it to soak into the ground."

A Question of Wires

WHETHER the city of Minneapolis can levy a "pole tax" on the wire companies who occupy the city streets is a question asked by many aldermen interested in the present agitation to force the companies to bury their wires in underground conduits. In order to expedite the removal of poles from the city streets, it was thought that a tax on every pole belonging to the various companies would be effective. But the constitutionality of such a tax would have to be established by the Minnesota courts.

Some years ago these companies secured an amendment to the State constitution exempting them from all special taxation upon the payment of a three per cent. tax on their gross earnings; they can, therefore, add to their holdings and forever be free from the burden of an increasing scale of city taxes.

The question is, would a "pole tax" be construed by the courts as contrary to this constitutional amendment? To render a decision upon this point, the courts would have to decide whether a pole is necessary to the business of such wire companies. Considering that it is more economical to use underground cables instead of leads where there are a hundred bare wires strung on cross-arms, poles may be declared unnecessary, in which case they could be taxed by the city. Not long ago, the Supreme Court of Minnesota declared that the general office building occupied by the Northwestern Telephone Company in Minneapolis, in which is also the Company's central exchange, was not necessary to the conduct of its business and the Company is now paying to the city a tax thereon.

Under the State statutes, public service companies incorporated under Minnesota laws can have free access to the public highways and thoroughfares in the State. The State Supreme Court ruled that the term "highways" included city streets. Consequently, such companies do not need a franchise or any permission to occupy the streets of the city. The only dictation that can be meted out to such corporations by municipalities in the State under this ruling is that regarding the location of wires or tracks in the streets. With this limited dictatorial right, Minneapolis will soon put in force an ordinance compelling overhead wires to be put underground, and a "pole tax" may help a little to the desired end.

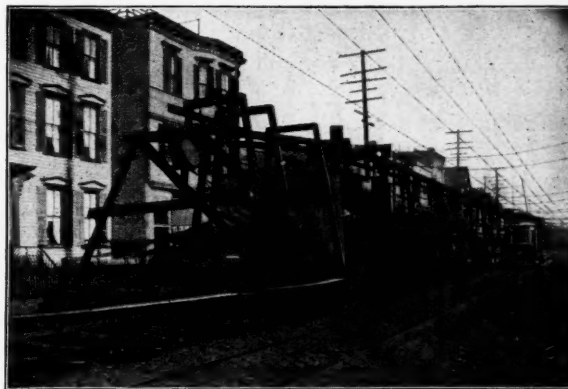
"COMING EVENTS CAST THEIR SHADOWS BEFORE," and the citizens of Muncie, Ind., attach considerable significance to the omission of the usual item of \$12,000 hydrant rental, hitherto paid to the local water company, from this year's appropriations by the City Council. The relations between the city authorities and the company are strained at best, and the non-provision of the amount in question, in conjunction with the appropriation of \$2,500 for the cost of an expert's report on the water supply conditions, appears to justify the anticipation of important developments. Among other duties, the expert will be asked to make an appraisal of the company's plant.

TRENCH MACHINES

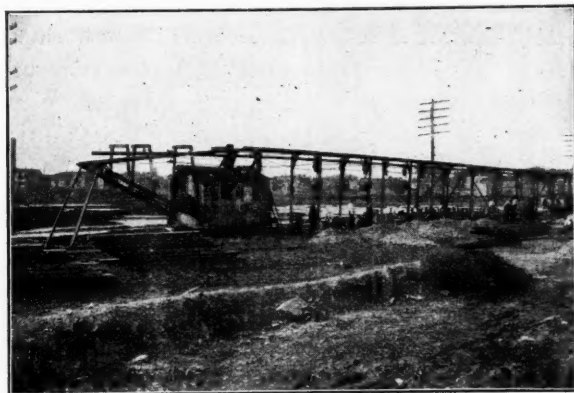
THE importance and complexity of earthwork problems, particularly as regards the factors contributing to the cost of this branch of constructional work, are strikingly demonstrated in the volume on *Earthwork and Its Cost*, by H. P. Gillette, reviewed on page 42 of our January monthly number. Some of these were touched upon in our notes, and the book itself refers to more than one instance in which, by the adoption of the most suitable, if not always the most obvious method, what might have been an utterly inadequate contract price was proved to be at least a reasonable bid.

Some of the earlier efforts to replace manual labor by "graders" and other appliances of that class were evolved from the necessity of dealing with very large masses of earth, as in railroad cuts and fills. It was reserved until later, when the development of the deep sewerage system in cities and towns called for larger ideas on the trench problem, to see the introduction of devices specially adapted for reducing the amount of handling required. This successive handling, under earlier methods, began with the completion of the first level, beyond which "stages" were required from which to throw, by the

employed for actuating the traveling buckets being the original incentive to the use of steam power for this purpose. The machine is too well known to call for any lengthy description in a journal circulating among municipal officials and contractors for public works. The pat-



CARSON TRENCH MACHINE: CAMBRIDGE STREET, CAMBRIDGE, MASS.



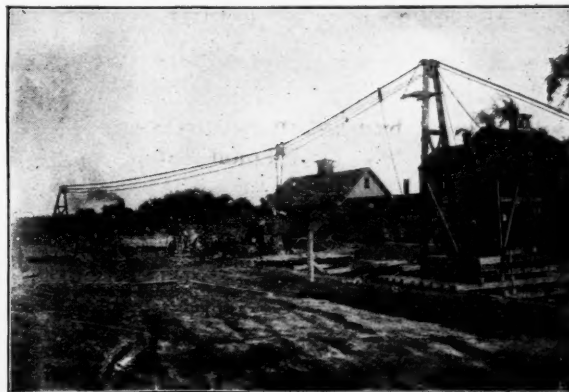
CARSON TRENCH MACHINE: COLUMBIA AVENUE SEWER, BOSTON, MASS.

wasteful application of manual labor, the material onto the next stage above, with an obvious multiplication of effort. This was bad enough, but a part of the labor had to be repeated when the time came to back-fill the trench, and there was the further objection that, in narrow and frequented streets, sometimes even in wide ones, the piling up of earth was a formidable inconvenience. In some cases, the pressure of this earth, exerted over a relatively small area, added an element of risk to workmen and to adjacent buildings.

The difficulty of maintaining traffic was probably the principal factor in turning the attention of Mr. Howard A. Carson, in charge of construction on the Boston Main Drainage Works in the early "eighties," to the possibility of a new departure. The successful machinery with which his name is now identified is the result of evolution from first ideas, a strike among the laborers first

tern in most general use has a total length of 336 feet, of which 288 feet constitutes the working length. The trench under the latter length is generally divided into three approximately equal sections, in the foremost of which excavation is being carried on. Actual construction is in process in the middle section, while the third section is being back filled with earth conveyed directly from the excavation. The framework, 14 feet high and 8½ feet wide, is supported on a T-rail track and can be pulled ahead, in 48-ft. reaches, in a few minutes.

A later development, avoiding the weighting of the trench sides by the machines, is found in the Carson-Lidgerwood Cableway, handled by the same firm—the Carson Trench Machine Company, of Charlestown, Boston. The main cable extends between 30-ft. towers, 300 feet apart, and carries only one bucket, as compared with one or two sets, of four or six tubs each, usually mounted on the Carson machine. The capacity of a cableway machine may amount to as much as 350 cubic yards per day, somewhat in excess of what the earlier machine can



CARSON-LIDGERWOOD CABLEWAY: SALEM, MASS.

accomplish, but much depends, in either case, upon the nature and location of the work. The absence, in the cable machine, of tracks over the actual work is often an important feature, as facilitating the storage of large amounts of waste or surplus material.

Analysis of Hard Waters

THE hardness of water has no sanitary significance in itself, but it is frequently useful in the interpretation of other analytical data. The chief reasons for making analyses of the hardness of water are to determine its fitness for general domestic and industrial uses, or to test the operation of softening plants. For many purposes it is necessary to know the results with great accuracy, but frequently, as in field work or in connection with softening plants, approximate tests are sufficient.

The soap test is the best known test for hardness, and if properly made is of great value for waters of moderate hardness, and even for very hard waters if the magnesia in the water is low. The results are expressed in "degrees of hardness," which mean different things in different countries. In England, a "degree of hardness" is one grain per Imperial gallon; in America it is one grain per United States gallon; in France it is one part of CaCO_3 per 100,000; in Germany, one part of CaO per 100,000. The modern standard method is to express hardness as parts per million by weight.

The United States Geological survey has devised a soap pellet for determining hardness for use by engineers in the field. By adding these soap pellets to a certain amount of water in a bottle until persistent suds remains after shaking, the hardness can be ascertained with a fair degree of accuracy. Other pellets are provided for making determinations of alkalinity, chlorine, etc., so that for a rough assay of water a prospecting engineer has a serviceable traveling laboratory in which almost no liquids have to be transported.

Besides the total hardness of water it is desirable to know the alkalinity, the amount of free carbonic acid, the incrusting calcium, magnesium, etc. The best methods for determining these are given in the report of the Committee on Standard Methods of Water Analysis of the American Public Health Association.

Demonstrations of the most common approximate methods of analysis in connection with the subject of hard waters were made by the lecturer.

* Abstract of the second in a series of six lectures on "The Industrial Uses of Water," now being given, on Tuesday evenings, before the Polytechnic Institute of Brooklyn, by Consulting Professor George C. Whipple, of the Department of Chemistry.—Lecture of January 16.

Building Inspection in Cleveland, O.

At the meeting of the Cleveland City Council on January 2, the following memorial was presented by the Special Code Committee of the Builders' Exchange of that city:—

To the Honorable Mayor and Council of the City of Cleveland.

Gentlemen: The Builders' Exchange of Cleveland has

been aware for some time that the present force in the office of the Inspector of Buildings has been entirely inadequate to properly carry out the provisions of the new Building Code of Cleveland, in the procuring and executing of which the Builders' Exchange has been so vitally interested. We believe we have secured the best building code of any city in the country, but it will be of little avail if it cannot be properly administered. The Exchange earnestly requests that steps should be at once taken to remedy the existing state of affairs.

We, therefore, in the name of the Exchange, earnestly urge upon your honorable body the necessity of at once appointing a sufficient number of district inspectors, not to exceed five, whose duty it shall be, under the direction of the Inspector of Buildings, to daily inspect buildings and report any violation of the Building Code and any unsafe buildings.

It is our opinion that men should be appointed to these positions who have had the equivalent of at least five years' experience as practical builders, foremen or building superintendents, and should be men capable of earning \$1,200 a year, all to be chosen after a competitive examination.

Waste Detection in Norfolk, Va.

A PROBLEM which has been a source of much annoyance and expense to the city authorities of Norfolk is being successfully dealt with by Mr. R. H. Jones, Superintendent of the Water Department. By a system of by-pass meters, using the existing gates as essential parts of the plant, he has succeeded in locating leaks aggregating 500,000 gallons per day, equivalent to about 8 per cent. of the gross consumption. This represents the result of his first year's work and as the Norfolk supply is both pumped and filtered it will be seen that the effects of the reduction are especially far-reaching from a financial point of view.

Prior to the installation of these small meters, the city was painfully aware of the existence of leakage, but the measures then taken failed to indicate where examination and repairs were required. It is not necessary to use a large number of meters, as they can be uncoupled and transferred from point to point, as required.

VIRGINIA'S NEW STATE HOUSE AT RICHMOND, for which an appropriation of \$250,000 was made, has been completed. It occupies the historic site of the ancient Capitol designed by Thomas Jefferson, and built in 1785. Ground was broken in July, 1904, by the contractor, Wirt A. Chesterman, of Richmond, the plans being drawn by John Kevan Peebles, Norfolk; Noland & Baskerville, Richmond, and Frye & Chesterman, Lynchburg. The building is a classic design of the Ionic order. Portions of the old walls were left, but the structure is practically new throughout. Mr. Chesterman secured the contract with a bid of \$169,000, but changes were made in the specifications, necessitating an additional expenditure of \$50,000.

CITY BREVITIES

BALTIMORE, MD., is making extensive additions to the city's boulevard system.

COLUMBUS, OHIO, proposes a further expenditure of \$83,000 on the city lighting plant.

DETROIT, MICH., is discussing a municipal system of subways for public and corporate services.

VIENNA, AUSTRIA, with a population of 1,816,000, uses only seventeen gallons of water per capita per day.

MUNCIE, IND., may abandon its municipal electric lighting plant, the financial results being unsatisfactory.

LAWRENCE, MASS., is agitating the question of an additional bridge across the river to South Lawrence.

ACKLEY, IA., has accepted, as a gift from the owner, an electric lighting and heating plant valued at \$10,000.

RICHMOND, IND., with a population of 20,000, has expended \$212,000 on a municipal electric light and power plant.

PITTSBURG, PA., is asked to appropriate \$1,000,000 for important water main extensions. A bond issue is proposed.

PASADENA, CAL., is struggling with legal and other difficulties said to stand in the way of acquiring the local waterworks undertaking.

LONG BRANCH, N. J., is discussing the relative advantages of municipal and contract methods of garbage disposal.

MASSILLON, OHIO, has had an experience of dark streets, the local lighting company having turned off the arc lights in the absence of a contract with the city.

COLUMBUS, OHIO, has an annexation plan in view. The proposed addition of 15,000 in outlying villages would bring the city's population up to 200,000.

DULUTH, MINN., is to have new court-house accommodations, but opinions are divided as to the merits of one or two buildings for the requirements to be met.

TRENTON, N. J., is doing much in the line of tenement house supervision; the report of a special Board, dealing with this question, shows the need of a larger executive staff.

SEATTLE, WASH., contemplates an expenditure of \$160,000 on street paving. Asphalt is to be largely used in both divisions of the work, with sandstone blocks for one section.

COLORADO SPRINGS, COLO., is dealing with the excessive waste of water, and has asked for an official report as to interference with the plant by employees of a local manufacturing company.

NEW YORK'S RIVERSIDE DRIVE EXTENSION is being pushed forward at a rate which leads to the hope of completion within the present year. It is being carried out at an estimated cost of over \$3,000,000 and will have an average width of 250 feet. This is in addition to a 20-ft. bridle path and two 15-ft. walks, bordered with turf and trees.

A Garbage Difficulty Settled

THE long-pending negotiations between the city of Muncie, Ind., and the Decarie Manufacturing Company, in regard to taking over a garbage incinerating plant installed for the former by the latter, were concluded on December 22, when a compromise was arrived at. Under the contract between the two parties, the new incinerator was required to burn daily forty tons of mixed waste, 10 per cent. of which was to be night-soil, at a cost of fifty cents per ton for fuel and labor. Two trial tests, last summer, yielded inadequate results, and the city refused to accept the plants. The company then claimed payment of the contract amount—\$17,868—on the basis of a trial made independently of the city, and, this being refused, installed two auxiliary furnaces, one on either side of the furnace proper, for dealing with swill, slops, and very wet materials. The results of a further test, made in December, have not been published, but the terms since agreed upon involve the taking over of the plant, as it stands, on payment of \$11,700 by the city. The terms are regarded as satisfactory by President Wood, of the Board of Public Works. "The plant," he says, "is not what we would have ordered had we been building it, and we doubt if it will accomplish the work required of it under the contract with the Council. However, it will consume thirty tons of garbage daily, and do it on a small fuel allowance if the people furnish combustible refuse."

Garbage in Detroit

A FEATURE of the garbage disposal system of Cleveland, Ohio—the carriage of the garbage, by rail, for eight or nine miles to the reduction plant outside the city—has been the subject of some criticism in various quarters. But if proposals seriously made to the city of Detroit, by the Toledo Reduction and Fertilizer Company, be acted upon as desired, the Cleveland critics will have a new field for their vocation. The company proposes to haul the city's refuse sixty miles on the L. S. & M. S. Railroad to the Toledo garbage plant, which was briefly described on page 154 of our issue of October, 1905.

As contrasted with bids received some time ago, in response to Detroit's invitation, the Toledo Company offers to dispose of the garbage free of charge to the city. It is estimated that provision would have to be made for an average of 150 tons of refuse per day, this to be transported by the Edson System's patent odorless tanks. Manager Gerson, of the Toledo Company, stated in a recent interview that the plant was not now receiving the whole of the Toledo refuse and that an additional supply would assist its economical operation.

THE TAXATION OF AUTOMOBILES, on the basis of the damage caused to public highways, is the scheme laid before Governor Stokes, of New Jersey, by State Road Commissioner E. C. Hutchinson, in his annual report. He believes that these vehicles should be taxed in proportion to the maximum speed of which they are capable, as affording a fair measure of their destructive effect on roads.

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Our readers are invited to contribute to the MUNICIPAL JOURNAL AND ENGINEER, either in the form of special articles or of letters discussing matters of current interest.

It is also desired that the facilities furnished by the reference library in this office should be widely known and freely used by those interested in municipal affairs. Visitors will be welcomed and provided with conveniences for search, and inquiries by mail will be promptly dealt with.

NEW YORK, JANUARY 24, 1906.

Municipal Ownership

THE importance, inherent and acquired, attaching to the subject of municipal ownership is significantly reflected in the numerous public references to it which we are called upon to chronicle in these pages. The present time is especially rich in these allusions, for the annual messages of Governors and Mayors afford opportunities for statements and opinions which it were worse than idle to ignore. In some instances, these are, as must be looked for, marred by the cramping influences of a too servile adhesion to local conditions, but others evince a laudable disposition—and ability—to stray from the flesh-pots of parochialism and to utilize the indispensable local experience in that broader application of it which is alone of value for the outside seeker after truth.

We reproduced, in last week's issue, a considerable portion of an address by Mayor Cutler of Rochester, N. Y., in which, as it appears to us, very fair and reasonable ground is taken on this question. In urging, as he does, a conservative attitude in regard to the transfer of corporate undertakings to the municipality, he cannot be accused of any partiality for the former, for a large share of his address was devoted to the relation of steps taken, with his entire approval, to secure that living up to contracts by the Rochester street railway company which constitutes one of the acknowledged difficulties of the general problem. But, while these things are living entities with him, he does not allow them to obscure his vision or to bemuse his intellect by driving him into the ranks of uncompromising "municipal traders." We use this term with no thought of identifying with the obloquy which has grown around it in Great Britain those reasoning advocates of improved municipal conditions from whom the solution of this, among other American problems, may be hopefully expected. But there are those to whom Mayor Cutler's remarks may, we trust, be commended without any idea of offense in reminding them

that both sides of most questions are equally deserving of consideration.

This is, indeed, the cardinal principle underlying the action of the National Civic Federation in undertaking an exhaustive investigation of facts with which the American public has hitherto been only partially familiar. Consular reports, papers read before professional and other societies, newspaper articles, and other sources of information have been freely drawn upon, but no such inquiry as that which is to be entered upon in Europe by a committee of the Federation during the coming summer has yet been made. Two questions of vital importance will come up for solution, one affecting foreign, the other, domestic conditions. The sufficiency, or otherwise, of the provision made for depreciation in British municipal undertakings will have to be determined at the same time as the fitness, or otherwise, of American institutions for assimilating those methods of direct operation which have been more or less successful under other conditions. It is probably not too much to assume that municipal ownership will have to be resorted to in America, not necessarily as an ideal step, but as the most practicable way out of conditions no longer to be borne. It is when the question of direct operation by American municipal bodies comes up for discussion that the widest divergence of opinion may be looked for, this phase being indissolubly connected with the larger and equally pressing question of municipal government as a whole.

Efforts for Peace

THE suit referred to, on page 25 of our issue of January 3, as standing in the way of a settlement of the Cleveland Street Railway difficulty, has since been settled in favor of the city, thus bringing its inhabitants another step nearer the realization of three-cent fares. In view of this decision, the City Council has adopted a resolution requesting the Electric Railway Company not to carry the case to another court, but to accept the decision as final, and thus clear the way for testing the practicability of building and operating a street railway on the lower basis.

In supporting the resolution, Mayor Johnson recited the history of the case, particularly as regards the delay interposed at every stage by the company. "It is time," he said, "for the Council to ask them, as man to man, to be fair and give us a chance. If they refuse your fair request, they will forfeit the good opinion of the people of this community. I hope they will step aside. Now let the street railway company be fair or admit before this community that it is unfair."

GARBAGE REDUCTION IN DETROIT is in danger of being impeded by the action of real estate dealers, who threaten to invoke the aid of the Attorney General of the State if the city enters into any contract which does not disclose the location of the proposed reduction works. The Detroit Reduction Company, with which an agreement had been negotiated, refuses to state definitely where the plant is to be erected.

A HANDSOME "GOOD ROADS" OFFER

THE following self-explanatory correspondence, which has been handed to THE MUNICIPAL JOURNAL AND ENGINEER by Hon. H. S. Earle, Michigan State Highway Commissioner, is a gratifying indication of the growing sentiment in favor of practical effort in the "good roads" campaign. It is satisfactory to record that Arenac County has made arrangements to accept the offer referred to below.

January 6, 1906.

HON. H. S. EARLE,

State Highway Commissioner, Detroit.

Dear Sir,—We are very anxious to help along the "good roads" movement.

We appreciate the importance to the railroads in general of good roads, and the especial importance to the Detroit and Mackinac Railroad and the new country through which it runs.

We would like to offer for your consideration the following proposition. You to select some highway, crossing our track, suitable for the laying of a temporary track alongside of the highway. We to lay a track and furnish gravel plowed off the cars into the road. The township or country to spread the gravel. We to furnish the gravel, delivered, including track work at actual cost to use. In order to give you a basis for figuring we agree that total cost of gravel delivered will not exceed twenty-five cents per cubic yard, and the price will be less if the actual cost is less. We would not lay less than three miles of track in a place, and would want to deliver at least 3,000 yards of gravel to the mile of track for use on the main road on which track is laid and on side roads. You can select your own territory for this experiment, anywhere on the line of our road.



HORATIO S. EARLE

Yours truly,

J. D. HAWKS,

President and General Manager, Detroit & Mackinac R. R. Co.

January 8, 1906.

MR. MORLEY E. OSBORNE, Standish, Michigan.

My dear Sir,—I am in receipt of the most remarkable "good roads" offer that I have ever had or heard of, which comes from Mr. J. D. Hawks, President of the Detroit and Mackinac Railroad Company, and is no less

than an offer to build a spur track out some road to be chosen by me from three to five miles long, and to deliver a sufficient quantity of gravel along the road side to build fifteen miles of road at twenty-five cents a cubic yard.

Knowing that Arenac County is chuck full of good citizens who desire to do all they possibly can to make that one of the noted counties of the State, and that you are one of the foremost ones along that line, I am constrained to give you the benefit of this offer if you can raise the money to pay for the grading and placing and rolling of the road.

You will be entitled to the State reward, which I believe will pay all the expense of building the road, over and above the amount you will have to pay for the gravel, so that fifteen miles of first-class gravel road will not cost your county to exceed forty-five hundred dollars.

Be prepared to answer me at Omer, January 12th, when I hold my Good Roads Institute, whether you desire to avail yourselves of this offer or not. Communicate with all of your leading citizens and publish all the letters regarding it so you will have a large attendance at the Institute.

Yours very truly,

HORATIO S. EARLE.

January 8, 1906.

MR. J. D. HAWKS, President, Detroit and Mackinac Railroad Company, Majestic Building, Detroit, Mich.

My dear Sir,—I beg to acknowledge receipt of, and to thank you for, your remarkable offer of the 6th instant.

Many times in the past ten years I have felt like giving up the "good roads" work on account of the many discouraging things that have been placed in my way; but occasionally some one would give me a boost by word or deed and I have kept at it; but in all my experience I have never had nor heard of such an extraordinary offer as yours and I assure you I shall take advantage of it. I enclose herein a copy of a letter that I have written to an Arenac County official giving to that county first chance to get fifteen miles of road at a trifling expense to them.

This experiment will be watched anxiously by my Department with the hope that it will furnish a precedent that can be followed with great benefit to all.

Sincerely yours,

HORATIO S. EARLE,

State Highway Commissioner.

A BIG WATER WORKS UNDERTAKING is suggested by C. Augustus Haviland, in a letter to the New York Herald of January 15. The writer objects to the "enormity" of spending \$161,000,000 "to tap a little creek up in the Catskills where all the refuse and sewage from summer hotels and boarding houses empty," and advocates the adoption of Lake Erie or Lake Ontario as the source of New York's additional supply.

THE MILAN INTERNATIONAL EXPOSITION, to be held in that Italian city in May, is to be made the occasion for an international congress dealing with the prevention and extinction of fires. This feature will be under the patronage of the King of Italy and be supported by the Italian Government and the city of Milan, and will include competitive contests and drills for national and foreign delegations of firemen.

THE WEEK'S CONTRACT NEWS

RELATING TO MUNICIPAL AND PUBLIC WORK—THE CONSTRUCTION FIELD—PROPOSALS AND CONTRACTS—
SEWERAGE AND WATER SUPPLY, STREET IMPROVEMENT AND LIGHTING—FIRE EQUIPMENT—
BUILDINGS

STREET IMPROVEMENTS

Middletown, Conn.—R. M. Wilcox, City Engineer, informs us that the cities and towns of Middletown, Haddam, Cromwell, Middlefield and Portland are to contribute \$5,200 each for joint highway construction this year.

New London, Conn.—Plans for paving in the spring involve the expenditure of approximately \$20,000. Brick will be used to a considerable extent.

Willimantic, Conn.—It is proposed to expend \$13,000 during the year for street improvements. Some paving will be undertaken.—F. S. Sanderson, City Clerk.

Washington, D. C.—The District Commissioners have approved plans for the extension of Massachusetts avenue, Wisconsin avenue to the District Line. Work may begin in the spring.—Colonel John Biddle, U. S. A., Engineer Commissioner.

Arcola, Ill.—The Mayor is urging the City Council to provide for paving certain streets.

Jacksonville, Ill.—The Council may have several streets paved with brick.

Peoria, Ill.—An ordinance providing for paving several streets is before the City Council. Preliminary plans have been prepared, and estimates obtained.

Sterling, Ill.—The Board of Public Works has decided upon the improvement of East Third street; also Locust street, the estimated cost being \$36,900.

Anderson, Ind.—The County Commissioners have appropriated \$27,000 for the repair and construction of roads during 1906.

Evansville, Ind.—The Board of Public Works will have Walnut street paved with asphalt.

Winchester, Ind.—Proposals for paving several streets will be opened, January 25.

Lawrence, Kan.—Preliminary plans have been prepared for paving certain streets.

Salina, Kan.—The City Council is considering paving Santa Fé avenue, from Iron avenue to the main line of the Union Pacific Railroad.—David H. Shields, Mayor; A. W. Godfrey, City Clerk.

Boston, Mass.—The Street Commissioners have preliminary plans for widening Dorchester avenue, Atlantic avenue to West Seventh street; estimated cost, \$1,800,000.—John F. Fitzgerald, Mayor.

Rochester, N. Y.—Ordinances have been adopted for paving East avenue and Cortland street, and extending Lewis and Hempel streets. The Board of Contract will receive bids.

Syracuse, N. Y.—The Board of Contract and Supply has rejected all bids for paving Leavenworth avenue, Tully street and Highland avenue, and will receive new bids.—Alan C. Fobes, Mayor; George J. Metz, City Clerk.

Rockingham, N. C.—Bids for \$15,000 Rockingham Township Good Road Bonds will be received by the Commissioners, February 5.—H. S. Ledbetter, Chairman.

Akron, O.—City Engineer Payne estimates the cost of paving Sherman street with block asphalt at \$33,522, and with brick, \$20,738; Adams street will also be paved.

Bucyrus, O.—Lucas street is to be paved with vitrified brick; estimated cost, \$18,500.

Cambridge, O.—The County Commissioners have authorized the macadamizing of six miles of roads.

Celina, O.—A \$20,000 bond ordinance for improving Main street has passed the City Council.

Cincinnati, O.—The Kirchner Construction Company was the lowest bidder for paving Springgrove avenue with bitulithic at \$23,337.

Altoona, Pa.—Bonds for \$100,000 for street improvements, including considerable paving, may shortly be issued. An election will be held, February 20, to determine the question.—Harvey Linton, City Engineer.

Dallas, Tex.—The improvement of three streets is contemplated by ordinances pending before the City Council. The estimated cost is \$100,000.—E. L. Dalton, City Engineer.

Gainesville, Texas.—Considerable paving will be undertaken during the year. Vitrified brick will be used. It is also proposed to construct cement walks.—George M. Rousseau, City Secretary.

Newport News, Va.—The city will petition the Legislature to authorize a \$100,000 bond issue for street improvements. Considerable paving will be undertaken.—W. T. Brooke, City Engineer.

Suffolk, Va.—It is proposed to petition the Legislature for permission to issue \$150,000 in bonds for street paving, grading and extensions.—Colonel J. H. Macleary, Chairman, Street Committee.

LaCrosse, Wis.—The City Council has taken up the matter of street paving. Brick may be used.

Rhineland, Wis.—Proposals will be opened, February 15, for improving certain streets. A macadam roadway; also cement curbing will be constructed.—Richard Reed, Chairman of Committee.

SEWERS

Marianna, Ark.—Proposals will be opened, February 12, for the purchase of \$26,000 in bonds for sewer construction.—Max D. Miller, Chairman, Finance Committee.

Oakland, Cal.—It is proposed to issue bonds for constructing sewers.

San Francisco, Cal.—The construction of sewers in San Jose, Onondaga and Ocean Avenues is being considered by the Board of Public Works; estimated cost, \$20,000.

Sparks, Cal.—A sewerage system is being discussed, to cost approximately \$65,000.

Bridgeport, Conn.—Plans and estimates for a trunk sewer in Noble avenue have been procured by the Sewer Committee, City Council. The cost will be \$15,000.—William Starr, City Engineer.

Hartford, Conn.—Fred. L. Ford, City Engineer, informs us that plans are being prepared for constructing sewers, to cost approximately \$100,000.

New Britain, Conn.—It is proposed to build five miles of sewers in the spring. Preliminary plans are under way.

Willimantic, Conn.—The cost of building 8,000 feet of 18-inch sewers is estimated at \$8,000.—F. S. Sanderson, City Clerk.

Daytona, Fla.—Plans for a sewerage system have been submitted to the Town Council by F. T. Smith, Engineer, representing Lewis & Kitchens, Chicago, Ill.

West Palm Beach, Fla.—Plans have been prepared for constructing a sewerage system.

Moline, Ill.—It is reported that \$37,000 will shortly be expended for the building of sewers.—Clark G. Anderson, City Engineer.

Clinton, Ind.—The construction of a sewerage system, to cost \$75,000, is being discussed.

Clinton, Iowa.—Proposals will be opened, January 30, for constructing a sewerage system at Rochelle, Ill.—Iowa Engineering Company, Engineers.

Holyoke, Mass.—Proposals have been invited, until February 16, for building an armory for Company D, at Pine and Sargent streets. The armory will be of brick and granite, with limestone trimmings, 82 x 158 feet.—W. J. Howes, Holyoke, Architect.

Saxonville, Mass.—The city may shortly petition the Legislature for permission to issue bonds to provide for a sewerage system.—J. R. Entwistle, Chairman, Street Committee.

Hastings, Mich.—The people will vote, February 13, upon a proposed \$35,000 bond issue for extending the sewerage system.

Rochester, N. Y.—Preliminary plans for a system of sewage disposal, to include a tunnel stretching into Irondequoit Bay, have been prepared by J. Y. McClintock, County Engineer.

Utica, N. Y.—Plans for storm and sanitary sewers for the Steele Hill district have been prepared by Chapman L. Johnson, Engineer.

Cleveland, Okla.—The citizens have voted to issue bonds for constructing sewers.

Carrick, Pa.—Plans and specifications have been prepared for a complete sanitary sewerage system, to cost approximately \$125,000.

Narberth, Pa.—Proposals will be opened, February 5, for building a sewerage system.—E. C. Hawley, City Clerk; Albright & Mobus, Engineers.

Reading, Pa.—Proposals will be opened, February 1, for constructing sewers in district No. 13.—C. C. Weltmer, City Clerk; Elmer H. Beard, City Engineer.

Washington, Pa.—A city committee is investigating the subject of sewage disposal. Isaac W. Baum, Chairman.

Seattle, Wash.—It is reported that City Engineer Thompson will shortly ask a \$1,000,000 appropriation for constructing a new sewerage system. Preliminary plans have been prepared.

Manila, P. I.—The contract for building Manila's sewerage system, for which bids were opened January 12, has been awarded to the Atlantic, Gulf & Pacific Company, New York, for \$1,631,050. Work will begin within three months, and must be completed, July 1, 1909. The total length of the sewers has been estimated at fifty-two miles, of which 7½ miles will be of brick and concrete.

WATER SUPPLY

New Decatur, Ala.—The question of erecting a filtration plant is being discussed.—B. L. Malone, member, City Committee.

Selma, Ala.—It is reported that an election will be held to determine the question of purchasing the plant of the Selma Water Company. Bonds may be issued.

Osceola, Ark.—Proposals will be opened, January 30, for building a water system. The Board of Improvement has plans.

Pueblo, Colo.—Improvements to the water system are being considered.—John T. West, Mayor; Hiram Phillips, Consulting Engineer, St. Louis, Mo.

Palatka, Fla.—Proposals are invited, until February 1, for building waterworks.—W. W. Lyon, Consulting Engineer.

Punta Gorda, Fla.—The citizens will vote, January 30, on the proposed bond issue for constructing waterworks.

Evanston, Ill.—The City Council may authorize a \$46,000 bond issue for improvement of the waterworks.

Seneca, Ill.—Plans will be prepared for constructing waterworks.—A. T. Maltby, Consulting Engineer.

Hartford City, Ind.—The Hartford Commercial Club will ask bids within a few weeks for drilling a 3,500-foot well. The cost will be \$10,000.

West Terre Haute, Ind.—The West Terre Haute Water Company is preparing plans to build a \$50,000 water system.

Roff, Ind. Terr'y.—The proposition to issue \$25,000 in bonds for construction of the proposed waterworks has been approved.

Carencro, La.—The city officials are considering the proposed construction of municipal waterworks.

Norton, Mass.—The city may petition the Legislature for permission to issue bonds for \$75,000 for building waterworks.—Charles Valentine, member, City Committee.

Grand Rapids, Mich.—The Board of Trade has obtained plans and specifications for supplying the city with Lake Michigan water at a cost of \$2,000,000. The plans call for an intake near Grand Haven; also a pumping station on the Lake shore, adequate to force water through twenty-five miles of pipe to a 50-million gallon reservoir. The City Council will consider the project.—Barney Meyer, Superintendent, Board of Public Works.

Lansing, Mich.—Plans have been prepared for erecting a sub-pumping station on the west side of the river; estimated cost \$4,000.—Charles D. Dodge, Superintendent, Water Board.

Brandon, Minn.—Proposals will be received, February 6, for building water works.—Oscar Clausen, Consulting Engineer; J. C. Metcalf, Recorder.

Waverley, Minn.—Bids will be received, until February 2, for constructing waterworks.—J. A. Kingsted, City Recorder; Clausen, Burch & Pillsbury, St. Paul, Engineers.

Fayette, Mo.—Bids have been asked, until January 30, for constructing municipal waterworks.—Burns & McDonnell, Kansas City, Mo., Engineers.

Billings, Mont.—Plans for constructing a municipal gravity water system are before the City Council. The franchise of the Billings Water-Power Company will shortly expire.

Jersey City, N. J.—The Board of Water Commissioners is considering the proposed issue of bonds for constructing new waterworks.—Charles VanKeuren, Chief Engineer, Water Board.

Rahway, N. J.—Bids have been asked, until February 7, for constructing a stand-pipe; also a filter plant.—H. B. Bunn, Clerk, Board of Water Commissioners.

Sandy Hook, N. J.—Bids have been invited, until February 10, for constructing an addition to the pump house; also for improvement of the waterworks, Fort Hancock, N. J., and the construction of a 400,000-gallon concrete reservoir at the Fort.—Lieutenant William Paterson, Post Quartermaster.

Buffalo, N. Y.—The municipality may issue \$500,000 in bonds for building a new pumping station at the waterworks. A filtration plant is also under consideration.—Francis G. Ward, Commissioner of Public Works.

Gibson, N. Y.—Plans have been prepared for installing a pumping engine at the waterworks; also for extending mains.

New York, N. Y.—Proposals will be invited within a few weeks for relaying mains to supply Ellis Island with water. Plans have been prepared under direction of A. B. Fry, Chief Engineer, United States Public Buildings, New York.

Peekskill, N. Y.—Plans for increased water supply in several city districts have been submitted to the Board of Water Commissioners. The estimated cost is \$135,000.

Watervliet, N. Y.—Plans have been completed for building the proposed gravity water system. The approval of the State Board will shortly be asked.

Winston-Salem, N. C.—An election may be held in the spring to determine the question of issuing \$125,000 in bonds for the purchase and extension of the local waterworks.

Wilmington, N. C.—The city may undertake the municipal ownership of the waterworks. The present plant may be purchased and improved.

Bismarck, North Dakota.—The contract for building waterworks at Fort Lincoln, North Dakota, has been awarded to William Tunny, Peoria, Ill., for \$25,740.

Carrington, N. D.—It is proposed to issue \$10,000 in bonds for constructing waterworks.

Cincinnati, Ohio.—Contracts will shortly be awarded for various improvements to the waterworks. Several new buildings will be erected, and new machinery installed.—A. Herrmann, President, Board of Water Commissioners.

Altoona, Pa.—A special election will be held, February 20, to determine the question of spending \$300,000 for constructing a reservoir; also other improvements to the waterworks.—Harvey Linton, City Engineer.

Hellam, Pa.—It is reported that waterworks will shortly be constructed. J. Edgar Small, York, Pa., is interested.

Waverly, Pa.—The purchase by the city of the local waterworks is being considered. Improvements will result if the plant is secured.

Brattleboro, Vt.—A Commission has been authorized to procure plans, and prosecute the work of installing waterworks. The estimated cost is \$250,000.—James F. Hooker, Chairman, City Committee.

Walla Walla, Wash.—Separate bids will be asked for furnishing material, including pipe, for the construction of the water system. Plans are nearly complete.

South Range, Wis.—The City Council is considering preliminary plans for constructing waterworks. Sewers may also be built.

PUBLIC LIGHTING

Rogers, Ark.—Plans have been prepared for certain improvements to the Rogers electric-light plant.

Van Buren, Ark.—The City Council has granted a franchise to the Van Buren Gas Company to supply the city, for lighting purposes.

Mountain View, Cal. — The Town Trustees may ask bids for a gas franchise either for one or more years.

Delaware City, Del. — The Delaware Water Improvement Company, Wilmington, has been awarded a ten-year franchise for lighting Fort DuPont, Del.

Wilmington, Del.—Plans and estimates are being prepared for the light and power plant of the Wilmington Heat and Power Company; estimated cost, \$500,000.

Rockmart, Ga.—The citizens have voted to issue bonds for constructing an electric-light plant.

Richmond, Ind.—The Board of Public Works will shortly provide new equipment for the municipal electric-light and power plant.—C. H. Rogers, Superintendent.

Louisville, Ky.—The City Council has been asked for an electric-lighting franchise, and a new power plant may be erected.—Lawrence Jones and P. Lee Atherton are interested in the formation of a company to conduct the enterprise.

New Orleans, La.—The Consumers' Electric Light Company will shortly erect a new \$40,000 power plant.

Westboro, Mass.—The Board of Selectmen is considering an ordinance providing for a municipal electric-lighting plant.

Waterville, Minn.—It is reported that a company is being formed to construct an electric-lighting plant.—George J. Dressel is interested.

Newton, Miss.—Kirkpatrick & Johnson, Jackson, Miss., are working on plans for extensions and improvement of the electric-light plant.

Camden, N. J.—The City Council is still reviewing preliminary plans for building a municipal electric-light plant. Proposals may be asked in the spring.

Orange, N. J.—Mayor Shoenthal has recommended early consideration of the matter of municipal ownership of the lighting plant.

Fort Ontario, N. Y.—Proposals will be received, until January 29, for installing electric light apparatus in the exchange building and the gymnasium at the fort.—Lieutenant W. C. Noble, Post Quartermaster, U. S. A.

Macedon, N. Y.—An election will shortly be held to decide the question of issuing bonds for constructing a municipal electric-light plant.

New York, N. Y.—The Board of Estimate has taken up consideration of the question of constructing subways for electric and other underground wires. The appropriation of \$100,000 has been recom-

mended by C. T. Hutchinson, Chairman of Lighting Commission.

New York, N. Y.—The Secretary of the Treasury has recommended to Congress appropriations aggregating \$345,000 for lighting the Ambrose channel, New York Bay. Of this sum, it is proposed to expend \$125,000 for constructing a lighthouse in the East channel; also \$90,000 for placing a lightship at the sea entrance.

Columbus, Ohio.—An ordinance has been presented to the City Council for a \$23,000 bond issue to improve the municipal electric-light plant.

Dushore, Pa.—A citizens' committee is investigating the question of a municipal lighting plant.

Oil City, Pa.—Bids have been asked, until February 20, for lighting the streets; also municipal buildings, for a term of five years, beginning July 1, 1906.

Pine Grove, Pa.—An election will shortly be held to determine the question of issuing bonds for an electric-light plant.

Wilkesbarre, Pa.—The construction of a municipal electric-lighting plant is recommended by Mayor Kirkenfall in his annual message to the City Council.

Olympia, Wash.—The City Council is considering an application for a franchise to erect poles, string wires and construct conduits for the transmission of light and power to several city districts. The cost is estimated at \$10,000.

Seattle, Wash.—Bonds for improving the municipal electric-lighting plant will shortly be issued.

Morgantown, West Va.—The city will hold a special election to determine the question of issuing bonds to construct a municipal electric-light plant.

Winnipeg, Man., Canada.—Proposals are asked, until February 12, for supplying certain equipment necessary for extending the electric-light system. The purchase of two 500-horse power generators is also being considered.—C. J. Brown, City Clerk; F. A. Cambridge, City Electrician.

FIRE DEPARTMENT SUPPLIES

Oakland, Cal.—Proposals will shortly be opened for the purchase of 1,000 feet of fire hose.—Walter B. Fawcett, Secretary.

Manchester, Mich.—The City Council will shortly ask bids for the purchase of fire apparatus.

Billings, Mont.—The City Council is considering the purchase of a new fire engine.

Lincoln, Neb.—The Fire Committee, City Council, will secure estimates and specifications for building a new fire station.

Rochester, N. Y.—The authorities have authorized the purchase of additional fire equipment.

Hope, N. D.—A Fire Department is being organized and apparatus will be purchased.

Pittsburg, Pa.—Proposals will be re-

ceived, January 26, for the purchase of one first size steam fire engine, two second size engines; also two chemical engines and hose wagons.

Iroquois, S. D.—The City Council is considering the formation of a Fire Department. Equipment will shortly be purchased.

Memphis, Tenn.—The Chief of the Fire Department has recommended the erection of four new engine houses during 1906.

Madisonville, Tex.—The City Council will authorize the erection of an engine house; also the purchase of fire equipment.

Norfolk, Va.—Proposals have been invited, until February 10, for constructing a fire alarm system at the United States Navy Yard, Norfolk.—Mordecai T. Endicott, Chairman, Bureau of Yards and Docks, Navy Department, Washington, D. C.

PUBLIC BUILDINGS

Pomona, Cal.—The question of issuing \$125,000 in bonds for erecting new schools; also for street improvements, is being considered.

Redondo, Cal.—The City Trustees are considering a bond issue of \$20,000 for erecting a City Hall.

McRae, Ga.—The contract for erecting the new Courthouse at McRae has been awarded to McKenzie & Son, Augusta, Ga.

Terre Haute, Ind.—Plans will shortly be completed and bids asked for constructing the proposed \$60,000 school building.—J. G. Vrydaugh, Cox building, Terre Haute, architect.

Waterloo, Iowa.—The County Board is considering the issue of bonds for erecting a Courthouse.

Charlotte, Mich.—The question of issuing \$20,000 in bonds for erecting a new Jail is being discussed. The people may vote on the matter.

Nevada, Mo.—The propositions to issue \$60,000 in bonds for erecting a new Vernon County Courthouse has been approved.

Hackensack, N. J.—A site has been selected on Palisades avenue, near Walker street, for the new 16-room school building, to cost \$60,000.

Orange, N. J.—Plans have been prepared for erecting a new 3-story brick school building.—Herbert D. Hale, New York, Architect; Fred T. Crane, City Engineer; W. B. Gans; City Clerk.

Syracuse, N. Y.—Proposals will shortly be asked for constructing the new National Guard armory. — G. L. Heins, State Architect.

Syracuse, N. Y.—A new school will shortly be erected at a cost of \$200,000, Archimedes Russell, architect, is preparing plans.

Cleveland, Ohio.—The Chamber of Commerce has endorsed the plan to increase the estimated cost of the proposed new City Hall from \$1,500,000 to \$2,500,000.

For Machines to Drill, Blast and Test Holes and Water Wells, write "LOOMIS CO., TIFFIN, O."

Columbiana, Ohio. — An election will shortly be held to determine the question of issuing bonds for erecting a school house.

Toledo, Ohio.—Plans have been completed for a new 2-story and basement school building. Proposals will shortly be invited. Langdon & Hohly, Architects.

York, Pa.—Extensive alterations and repairs will shortly be made to the City Jail. The cost will be \$65,000.

Milwaukee, Wis.—The Board of Education may authorize a \$360,000 bond issue for constructing new school buildings. Preliminary plans are under way.

MISCELLANEOUS

Birmingham, Ala.—The Jefferson County Commissioners have called for plans and specifications for constructing the proposed \$20,000 bridge over Warrior river.—Julian Kendrick, City Engineer.

Roosevelt, Ariz.—The Secretary of the Interior has executed a contract with the General Electric Company, Schenectady, for installing new electrical apparatus in the Roosevelt power-house, Salt river, Ariz. The cost will be \$39,150.

Durango, Colo.—The Animas Water & Power Company will shortly build a new concrete dam, 100 feet high; also a second dam; estimated aggregate cost, \$3,000,000.

Montrose, Colo.—Bids will be opened, February 6, for furnishing 30,000 barrels of Portland cement.—Chief Engineer, U. S. Reclamation Service, Geological Survey, Washington, D. C.; Engineer, Reclamation Service, Montrose, Colo.

Washington, D. C.—Proposals have been invited, until January 29, for constructing a stone wall and the completion of approaches to the Bureau of Engraving and Printing buildings, Washington.—James Knox Taylor, Supervising Architect, Treasury Department.

Atlanta, Ga.—A new iron bridge will shortly be erected at Lakewood avenue by the Georgia Railway & Electric Company.

Savannah, Ga.—The United States Senate is considering a bill providing for a re-survey of the Savannah river; also for deepening the channel by dredging. Preliminary estimates accompany the resolution. It will cost \$10,000 for the proposed survey.

Chicago, Ill.—Plans are being prepared for constructing twelve new bridges, to cost approximately \$3,000,000. It is proposed to expend \$1,000,000 this year. Four of the bridges will have fixed spans, crossing unnavigable streams. Another bridge, to cost \$300,000, will be erected at North

Halsted street.—J. M. Patterson, Commissioner, Board of Public Works.

Des Moines, Iowa.—Plans for the proposed Locust street concrete bridge are being prepared by George D. Dobson, Engineer. The bridge will consist of five spans.

Morgan City, La.—It is reported that a new steel bridge will shortly be erected over Atchafalaya river; estimated cost, \$300,000.

Baltimore, Md.—Proposals have been invited, until February 7, for building stone and timber bulkheads. Plans and specifications have been prepared.—N. H. Hutton, Harbor Engineer; E. Clay Timanus, Mayor.

Boston, Mass.—The question of building a city hospital, to cost \$1,500,000, is being discussed. Mayor Fitzgerald favors the project.

Saginaw, Mich.—Plans have been prepared for draining the low grounds in Hoyt Park, which will cost \$10,000.—R. W. Roberts, City Engineer.

St. Paul, Minn.—The bill appropriating \$250,000 for a bridge connecting St. Paul with Fort Snelling will probably pass. Plans for the structure are being prepared.—C. E. Rundlett, City Engineer.

St. Louis, Mo.—The City Council has finally adopted the ordinance appropriating \$11,000,000 for public improvements. The proposed municipal bridge is included in the general scheme.

Newark, N. J.—The Freeholders of Essex and Hudson counties are reviewing plans for the construction of a new bridge, to cost \$150,000, over Clay street.—James Owen, Engineer.

Trenton, N. J.—Three new bridges will shortly be constructed over the Delaware and Raritan canal, near Trenton.

Long Island City, N. Y.—A new trolley bridge, to cost approximately \$175,000, will shortly be built by the city over Dutch Kills Creek, Borden avenue.

New York, N. Y.—Mayor McClellan is considering a plan for municipal hospitals, to be of uniform architecture, and under direct control of a city Department. The cost of the hospitals is estimated at \$75,000,000.

New York, N. Y.—It is reported that the hospital provided for in the will of Charles T. Yerkes will cost \$800,000. Definite plans have not yet been prepared.

Cincinnati, Ohio.—Mayor Fleischman has approved an ordinance appropriating \$425,000 for building a viaduct at Harrison avenue, Cincinnati.

Cleveland, Ohio.—Preliminary plans

have been completed for the new union passenger station, to cost \$5,000,000. The building will be of stone and steel construction.

Dayton, Ohio.—An ordinance introduced into the City Council provides for constructing the Miami river dam; also for improvement of the park along the river front. A bond issue is proposed to provide funds. Judge C. W. Dustin, Ohio Circuit Court (Second District), is said to be interested.

Harrisburg, Pa.—Proposals will be opened, February 1, for constructing a reinforced concrete bridge over Coon Island Creek, at Vienna Station. Bids will also be received for a concrete bridge on the Natural road, East of Uniontown Borough, Fayette County.

Philadelphia, Pa.—Proposals are asked by the Bureau of Surveys, Board of Public Works, until February 14, for constructing certain bridges described under schedule "A."—A. Lincoln Acker, Director.

Philadelphia, Pa.—Plans are being prepared for a new Y. M. C. A. Building on Arch street, to cost \$500,000.

Providence, R. I.—Proposals for the iron work in constructing the Point street bridge will shortly be asked. The contract will involve \$63,000.

Providence, R. I.—It is proposed to build a new bridge over South Main street, near Benefit street. Plans have been prepared by Charles W. Lippitt, Engineer.

Aberdeen, South Dakota.—The Brown County Commissioners will shortly ask proposals for constructing ten bridges over various streams. One bridge will span the James river, and will be 300 feet in length.

Chattanooga, Tenn.—The time for opening bids for constructing the proposed bridge at Eleventh street has been extended until January 30. Some minor changes have been made in the original plans.—Robert Hooke, City Engineer.

Nashville, Tenn.—The Davidson County Court will consider plans and specifications for building a \$300,000 bridge over the Cumberland river.—W. W. Southgate, City Engineer.

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Proposals

Medina Sandstone Blocks

LYNCHBURG, VA.
The City of Lynchburg, Virginia, contemplates paving some of its streets with Medina Sandstone Blocks, and desires approximate quotations on this material delivered f. o. b. cars Lynchburg, Virginia. Samples of the sandstone blocks should accompany the approximate quotation. It should also be stated the number of blocks required to make one square yard of completed pavement.

H. L. SHANER, City Engineer,
Lynchburg, Va.

Brick Sidewalk and Macadam Paving

ROANOKE, VA.
Bids are asked until February 10th, 1906, for constructing brick sidewalks and macadam pavements in the City of Roanoke, Va. A certificate must accompany each bid for the amount specified under each nine sections (see specifications), and a guarantee bond in the sum of 50 per cent. of the contract price will be required of the successful contractor to guarantee the faithful performance of the contract. Plans and specifications can be obtained at the City Engineer's Office.

W. B. BATES, City Engineer.

Paving and Grading

LAWRENCE, KANSAS.
Bids will be received at the office of City Clerk, Lawrence, Kan., until 12 o'clock M., February 5, 1906, for the improvement of six (6) streets. The approximate quantities of work are: Grading, 12,000 cu. yds.; limestone curbing, 7,000 lin. ft.; vitrified brick paving (2 course), 33,000 sq. yds.

F. D. BROOKS, City Clerk.
HOLLAND WHEELER, City Engineer.

Lighting

Bids will be received at the office of the Commissioners of Water and Lighting, Oil City, Pa., until 7:30 P. M., February 20, 1906, for lighting the streets, city buildings, and hose houses of Oil City with electricity for a period of five years and also for a period of ten years, time commencing July 1, 1906. Particulars will be furnished on application to the Board of Commissioners.

A. M. BRECKINRIDGE, Clerk.

Sewers

DEPARTMENT OF PUBLIC WORKS.

READING, PA., Jan. 10, 1906.
Sealed proposals will be received at the office of the City Clerk of Reading, Pa., until 3 P. M. of Thursday, February 1, 1906, for the construction and laying of about

20,800 lin. ft. 10-inch pipe sewer,
20,600 lin. ft. 5-inch pipe sewer,
together with all the "Y's" and manholes in house sewer district No. 13.

A certified check upon a National Bank or a Trust Company proposal bond in the sum of \$6,000 must accompany each bid, and the successful bidder will be required to enter into a contract bond with a trust company existing under the laws of Pennsylvania, or authorized to do business in the State of Pennsylvania, in the sum of 40 per centum of the total amount of the contract.

Plans and specifications can be seen and blank forms of proposal obtained at the office of the City Engineer, Reading, Pa.

All proposals must be endorsed "Proposals for House Sewer District No. 13," and addressed to the Board of Public Works in care of Charles C. Weltman, City Clerk of Reading, Pa.

Payments for the proposed work will be made in improvement bonds.

The right is reserved to reject any or all bids.

By order of the Board of Public Works.

ELMER H. BEARD, City Engineer.

Sewers

BOROUGH OF NARBERTH, MONTGOMERY CO., PA.
Bids for constructing a sewer system for the Borough will be received until 8 P. M., February 5, 1906. All bids must be sealed and addressed to the Clerk of Council.

The work will consist of laying approximately six miles of Terra Cotta Pipe Sewers (sizes 8-in., 10-in. and 12 in.), with necessary manholes, flush tanks, etc.

Plans, specifications and information for bidders may be had of the Engineers on or after January 15, 1906, by depositing Ten Dollars, which amount will be refunded when said plans and specifications are returned in good condition.

No bid will be considered unless accompanied by a certified check for \$1,000.

Council reserves the right to reject any and all bids and to award the contract as it deems for the best interest of the Borough.

E. C. HAWLEY, Clerk of Council.

ALBRIGHT & MERRIS, Civil Engineers,
908 Land Title Bldg., Philadelphia.

Leading Manufacturers

Of Supplies and Equipment for Municipal and Public Work

Brick, Paving, Building and Sewer.

W. H. Arthur, Stamford, Conn.
Barr Clay Co., Streator, Ill.
Bessemer Limestone Co., Youngstown, O.
Clearfield Clay Working Co., Clearfield, Pa.
Collinwood Shale Brick Co., Rose Bldg., Cleveland, Ohio.
Federal Clay Products Co., 232 5th Ave., Pittsburg, Pa.
Flint Brick & Coal Co., Des Moines, Ia.
McAvoy Vitrified Brick Co., Philadelphia, Pa.
Metropolitan Paving Brick Co., Canton, O.
New England Steam Brick Co., Providence, R. I.
Pittsburg-Buffalo Co., Frick Bldg., Pittsburg, Pa.
Purinton Paving Brick Co., Galesburg, Ill.
Suburban Brick Co., Wheeling, W. Va.
Texas & Pacific Coal Co., Fort Worth, Texas.
Western Brick Co., Danville, Ill.

Road Machinery, Rock Crushers, Etc.

Acme Road Machinery Co., Frankfort, N. Y.
Austin Mfg. Co., Chicago.
Buffalo Steam Roller Co., Buffalo, N. Y.
Climax Road Machine Co., Marathon, N. Y.
Erie Machine Shops, Erie, Pa. Asphalt Rollers.
Kelly-Springfield Road Roller Co., Springfield, O.

Roofing and Roofing Material.

A. L. Barber Asphalt Co., 17 Battery Place, N. Y.
California Asphaltum Sales Agency, Mills Building, San Francisco, Cal.
Nashville Roofing & Paving Co., Nashville, Tenn.
Robt. A. Keasbey Co., 100 N. Moore St., N. Y.
Warren Bros. Co., Boston, Mass.
Warren Co., E. B., Washington, D. C.

Paving Materials (See also Brick).

A. L. Barber Asphalt Co., 17 Battery Place, N. Y.
Bevier Improved Wood Pavement Co., St. Paul Bldg., New York.
California Asphaltum Sales Agency, Mills Bldg., San Francisco, Cal.
Central Bitulithic Paving Co., Detroit, Mich.
Erimus Slag Paving Brick Co., 16 Exchange Pl., New York.
Globe Asphalt Co., 405 Bakewell Bldg., Pittsburg, Pa.
Southern Bitulithic Co., Nashville, Tenn.
Standard Bitulithic Co., 253 Broadway, N. Y.
U. S. Wood Preserving Co., 29 Broadway, N. Y.
Wadsworth Stone & Paving Co., Pittsburg, Pa.
Warren Brothers Co., Boston, Mass.
Warren Asphalt Paving Co., Cambridge, Mass.

Sewer Pipe.

East Ohio Sewer Pipe Co., Irondale, O.
Federal Clay Products Co., Pittsburg, Pa.
Great Northern Sewer Pipe Co., Empire, O.
Ohio River Sewer Pipe Co., Empire, O.
Pittsburg-Buffalo Co., Pittsburg, Pa.
Stratton Fire Clay Co., Empire, O.

Street Cleaning and Sprinkling Equipment.

Austin-Western Co., Chicago, Ill.
Etnyre, E. D., & Co., Oregon, Ill.
Sanitary Street Flushing Machine Co., St. Louis.
Strain, J. H., 12 Elm St., New York.
Studebaker Bros. Mfg. Co., South Bend, Ind.
Wirt & Knox Mfg. Co., 20 No. 4th St., Philadelphia, Pa.

Wagons and Carts.

Acme Road Machinery Co., Frankfort, N. Y.
Austin Mfg. Co., Chicago, Ill.
Climax Road Machine Co., Marathon, N. Y.

Fulton & Walker Co., Philadelphia, Pa.
Haywood Wagon Co., Baldwinsville, N. Y.
Hill Cart & Wagon Works, Jersey City, N. J.
Studebaker Bros. Mfg. Co., South Bend, Ind.
Tiffin Wagon Co., Tiffin, Ohio.
Troy Wagon Works Co., Troy, O.
Watson Wagon Co., Centre & Buck Sts., Canastota, N. Y.

Water-Works Equipment and Supplies.

Artesian Well & Supply Co., Providence, R. I.
Well Drilling.
Bethlehem Fdy. & Mach. Co., South Bethlehem, Pa. Pumping Machinery.
Buffalo Meter Co., Buffalo, N. Y. Meters.
Central Foundry Co., 116 N Nassau St., N. Y. Pipe.
Hersey Mfg. Co., So. Boston, Mass. Meters.
Jackson Filter Mfg. Co., St. Louis. Water Filters.
Luitweiler Pumping Engine Co., Los Angeles, Cal.
Mueller Mfg. Co., H., Decatur, Ill. Supplies.
Neptune Meter Co., New York. Meters.
Pittsburg Filter Mfg. Co., Pittsburg, Pa. Filters.
Pittsburg Meter Co., E. Pittsburg, Pa. Meters.
Rife Pumping Engine Co., 111 Broadway, N. Y.
John Simmons Co., N. Y. Supplies.
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Washington Pipe & Foundry Co., Tacoma, Wash. Pipe, Hydrants, Valves.
Water-Works Equip. Co., 180 B'way, N. Y. Supplies.

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American-La France Fire Engine Co., Elmira, N. Y.
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Fabric Fire Hose Co., Duane & Church Sts., N. Y.
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ing approximately 5,000 feet 6-inch pipe, 1,800 feet
10-inch pipe, 18 cast-iron manholes and 100 6-inch
Y's, for the city of West Palm Beach, Fla. The
right reserved to reject any or all bids. Address
A. P. Anthony, West Palm Beach, Fla.**Street Paving**INDEPENDENCE, KANS.
Sealed proposals will be received by the City
Clerk of Independence, Kansas, up to three (3)
o'clock P. M., of Tuesday, February thirteenth
(13th), 1906, for the paving and curbing of Tenth
street. Distance, 3,200 feet; width, thirty (30)
feet; two courses of vitrified brick. Plans and
specifications on file at office of City Clerk. Cer-
tified check for \$700 to accompany bid. The city
reserves the right to reject any or all bids.T. N. SICKELS, City Clerk.
Jos. S. BARNWELL, Engineer.**Water-Works Supplies**DEQUEEN, ARK.
Bids will be opened February 15, 1906, by L. A.
Pearre, at Dequeen, Ark., for the purchase of
cast-iron water pipe, valves, pumps and boilers,
necessary for the construction of a system of water-
works.Specifications and list of requirements may be
had by addressing The O'Neil Engineering Com-
pany, Dallas, Texas. All rights reserved.**Waterworks**

GREELEY, COLO.

Bids open Feb. 6.

Sealed proposals will be received by the City
Clerk until 7 o'clock P. M., February 6, 1906, and
thereupon opened, for the furnishing of materials
for and the construction of a gravity water supply
for the city of Greeley, Colorado. The proposed
work will consist of a sedimentation basin and a
filtration basin; a pipe line 20 inches in diameter
and approximately 38 miles long, to be built of
continuous wooden stave, machine banded wood
pipe or steel pipe, and a receiving and distributing
reservoir. Bids will be received for any portion or
for the entire works as stated above. The right is
reserved to reject any or all bids, and where a bid
covers more than one part of works, one part may
be accepted and another rejected.

M. P. HENDERSON, City Clerk.

Sewers

CRESCO, IOWA, Jan. 4, 1906.

Sealed proposals will be received at the City
Clerk's office until 8 P. M., February 15, 1906, for
the construction of two sewers, aggregate length
4,050 feet, with 8 manholes and 2 flush tanks.
Estimated cost of sewers \$3,000. Sewers to be of
8-inch vitrified sewer pipe, with cemented joints,
to be completed July 15, 1906.Bids must be for the two sewers together. All
bids must be addressed to the City Clerk and each
bid must be accompanied, in a separate envelope,
by a certified check of \$200, payable to the order
of the City Treasurer.Plans and specifications on file at the City
Clerk's office.W. L. RICHARDS,
Chairman Sewerage Committee.**Extension of Water System**

FORT FREMONT, S. C.

CONSTRUCTION OF WATER SYSTEM.

ATLANTA, GA., Jan. 3, 1906.

Sealed proposals will be received by the Quar-
termaster, Fort Fremont, S. C., until 11 A. M., Feb-
ruary 3, 1906, for labor and materials for exten-
sion of Water Distribution System at that post, in
accordance with plans and specifications on file
there. For blank forms of proposal and further
information application should be made to the
Quartermaster, Fort Fremont, S. C.

SAM. R. JONES, Chief Quartermaster.

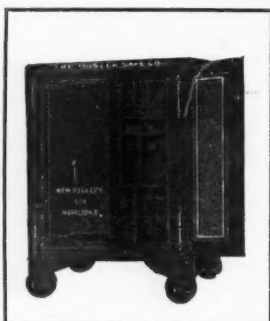
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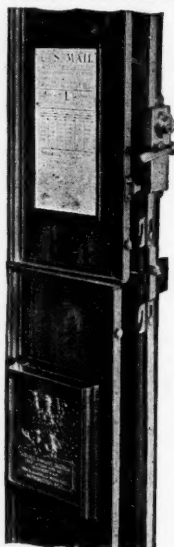
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